FINEST® FinestCaltek

Finest 1006

Automotive Scope/GMM/OBD II Code Reader

Automotive On-board diagnostic systems of thesedays have gone a long way toward helping you locate a problem. But those systems aren't perfect and they don't cover everything (most glitches and intermittents). So the real challenge that befuddles most automotive technicians is diagnosing "no-code" trouble. On-board diagnostic systems are engineered with fairly wide set limits for sensors, actuators, connectors and terminals. When a component exceeds its limit consistently, a trouble code is generated. But to keep warranty costs in line, tolerances aren't set to catch all transients, even though they can cause some of your worst headaches. As a result, technicians are finding more and more uses for the oscilloscope - next to the multimeter, the most common troubleshooting tool.
The 1006 Automotive Scope/GMM/OBD II Code Reader represents the most powerful and versatile tool available for troubleshooting automotive electronics since we can track down elusive no-code driveability problems as well as diagnose OBD II sensors and components.

Features:

- A 25 Mega-sample/Second (one channel minimum) sample rate for rapid data updates.
- Lab scope signal patterns.
- True RMS Graphing Multimeter (GMM) measurements and graphs.
- OBD II (EOBD) Code Reader function.
- A unique "Glitch Snare" mode which captures, displays and optionally saves abnormal signal patterns in the Scope mode of the COMPONENT TESTS only when they occur.
- Preset tests that enable the user to check the majority of automotive sensors, actuators and systems easily and quickly.
- Powerful built-in reference information for each preset test which includes a test procedure showing how to connect to the circuit, a normal reference signal pattern, theory of operation and troubleshooting tips.
- Menu-driven interface has automatic configurations for most of non-preset tests, so you will find that the instrument is easy-to-use.
- The Secondary Ignition Single function displays the waveform along with the spark voltage, RPM, burn time and burn voltage.
- The Diesel function allows you to set injection pump timing and RPM using the optional Diesel accessories.
- USB interface supports updates for code and data.

Accessories:

- Ni-MH Rechargeable Battery(1.2Vx5) Pack - BT10
- Shielded Test Leads (Red, Yellow) - FSTL 1000
- Ground Leads for Shielded Test Leads (Black) - FSTL 1000G
- Alligator Clips (Red, Yellow, Black) - AC5W
- Back Probe Pins (Red, Yellow, Black) - BPP 1000
- 2 mm Adaptors (Red, Yellow, Black) - FSA 2
- Secondary Capacitive Pick-up - SIP 1000
- Ground Leads for Secondary Probe - SIP 1000G
- Inductive Pick-up - RPM 206
- AC to DC Power Adaptor - PA 1000
- OBD II Code Reader Cable - 1006 OBD 2
- Soft Carrying Case - S3C
- User's Manual (Paper) - FUM 1006

Optional Accessories:

- USB Interface Kit(USB Cable + Firmware Loader Disc) - USB 1000
- Temperature Probe - TP 10
- mA Current Probe - CA113 OS/AT
- Diesel Interface Probe - DPS 1000
- Waveform Manager (CD) - WFM 1000
- Isolated 12 V Charger - PC 1000/12
- Isolated 24 V Charger - PC 1000/24
- User's Manual (CD) - FUM 1006 CD

Standards

- CAT II 300V
- IEC 1010-1
- UL 3111-1
- C22.2 No. 1010-1
- UL-Listed
- CE-mark

Due to our policy of continual product development we reserve the right to amend the specifications of all mentioned products without notice.

Electrical Specification

Accuracies is given as ±(% of reading + number of least significant digits) at 18°C to 28°C with relative humidity up to 80%, for a period of one year after calibration.

Scope Specifications

Horizontal

- Sample rate : 25 Mega sample/second
- Record length : 1000 Points
- Update rate : Real time, Roll
- Accuracy : ± (0.1 % + 1 pixel)
- Sweep rate : 1 µs to 50 sec in a 1, 2, 5 sequence (Scope mode)
- 5 s to 24 Hours in a 1, 2, 5 sequence (GMM mode)

Vertical

- Band width : DC to 5 MHz ; -3 dB
- Resolution : 8 bit
- Channel : 2 Channel
- Coupling : AC, DC, GND
- Input Impedance : 1 Mohm / 70 pF
- Maximum Input Voltage : 300 V
- Volt/Division : 50 mV to 100 V in a 1, 2, 5 sequence
- Accuracy : ± 3 %

Trigger

- Trigger Source : CH A, CH B, TRIGGER (External trigger)
- Sensitivity (CH A) : < 1.0 div to 5 MHz
- Sensitivity (Trigger) : 0.2 V p-p
- Modes : Single shot, Normal, Auto
- Coupling : AC, DC
- Slope : Rising and falling edge

Others

- Glitch Snare : SCOPE Mode (Component test only)
- Acquire Mode : SCOPE Mode
- Setup memory : 8 Waveform & Setup
- Reference waveform : 51 Waveform and Setup
- Cursor : Time and Volt
- Instrument Setup : Language, Contrast, Graticule

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Graphing Multimeter (GMM) Specifications

DC Voltage Measurement

Range	Resolution	Accuracy
500mV	0.1mV	±(0.3% Read. + 5dgt)
5V	0.001V	
50V	0.01V	
600V	0.1V	

AC Voltage Measurement

Range	Resolution	Accuracy	
		40 Hz – 400 Hz	400Hz – 20kHz
500mV	0.1mV	±(0.5% Read. + 5dgt)	±(2.5% Read. + 5dgt)
5V	0.001V		
50V	0.01V		
600V	0.1V		

AC+DC Voltage Measurement

Range	Resolution	Accuracy	
		40 Hz – 400 Hz	400Hz – 20kHz
DC 500mV	0.1mV	±(0.8% Read. + 5dgt)	±(3.0% Read. + 5dgt)
DC 5V	0.001V		
DC 50V	0.01V		
DC 600V	0.1V		

RPM Measurement

Mode	Range	Accuracy
4 cylinder	120 – 20000 RPM	2 RPM
2 cylinder	60 – 10000 RPM	

Frequency Measurement

Function	Range	Resolution	Accuracy
Frequency	10 Hz	0.001 Hz	±(0.1% Read. + 3dgt)
	100 Hz	0.01 Hz	
	1 kHz	0.1 Hz	
	10 kHz	1 Hz	
	100 kHz	10 Hz	
	1 MHz	100 Hz	
	5 MHz	1 kHz	
% Duty	2.0 % ~ 98 %	0.1 %	Pulse Width > 2μs
Dwell	3.6° ~ 356.4°	0.1°	1.2°/krpm + 2 d
Pulse Width	2μs ~ 450ms (Pulse Width > 2μs)		

Ohm Measurement

Range	Resolution	Accuracy
500Ω	0.1Ω	±(0.5% Read. + 5dgt)
5 kΩ	0.001kΩ	
50 kΩ	0.01kΩ	
500 kΩ	0.1kΩ	
5 MΩ	0.001MΩ	±(0.75% Read. + 5dgt)
30 MΩ	0.01MΩ	±(0.75% Read. + 10dgt)

Continuity Test

Test Voltage	Threshold	Response time
1.2V	Approx. 70Ω	1 ms

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Diode Test

Range	Open Circuit Voltage	Accuracy
2.0V	3.0V	±(2.0% Read. + 5dgt)

Temperature Measurement

Range	Resolution	Accuracy
-50°C to 1300°C	0.1 °C	± 3 °C
-58°F to 2372°F	0.1 °F	± 5.4 °F

DC Ampere Measurement (Current Probe Output)

Range	Resolution	Accuracy
30 mA – 20 A	1 mV/10 mA	±(1.5% Read. + 20 mA)
100 mA – 40 A	1 mV/100 mA	±(2.0% Read. + 20 mA)
40 A – 60 A	1 mV/100 mA	±(4.0% Read. + 0.3 A)

AC Ampere Measurement (Current Probe Output)

Range	Resolution	Accuracy	
		40 Hz – 1 kHz	1 kHz – 5 kHz
30 mA – 20 A	1 mV/10 mA	±(2.0%Read.+20mA)	±(4.0%Read.+30mA)
100 mA – 40 A	1 mV/100 mA	±(2.0%Read.+20mA)	±(6.0%Read.+30mA)
40 A – 60 A	1 mV/100 mA	±(8.0% Read. + 0.3 A)	

General Specifications

Operation temperature	:	32 °F to 104 °F (0 °C to 40 °C)
Storage temperature	:	-4 °F to 140 °F (-20 °C to 60 °C)
Relative Humidity	:	0 % to 80 % at 32 °F to 95 °F (0 °C to 35 °C), 0 % to 70 % at 32 °F to 131 °F (0 °C to 55 °C).
Temperature Coefficient	:	Nominal 0.1 x (Specified Accuracy) / °C (< 18 °C or > 28 °C ; < 64 °F or > 82 °F)
Max Voltage between any input and Ground	:	300 V
Max Input Voltage	:	300 V
GMM Basic DC Accuracy	:	0.3 %
Bandwidth	:	DC to 5 MHz (-3dB)
Max Sample rate	:	25 Mega sample/second
Graphing Multimeter Display Counter	:	5,000 count
Display	:	280 x 240 pixels (active area) with backlit (EL)
Reference Waveform	:	51 Waveform
PC interface	:	USB version 1.1
Power requirements	:	Rechargeable Battery (External AC to DC Power Adaptor)
Battery Life	:	4 Hours with backlit off
Size (H x W x D)	:	9.06 x 4.72 x 1.97” (230 x 120 x 50 mm)
Safety & design	:	CAT II 300 V per IEC 1010-1, UL 3111-1 and C22.2 No. 1010-1

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